

## ATEC Console Preventive Maintenance

### Post-Service Checks & Adjustments

### Console S/N

#### Scope:

This section to be used to check console function and adjust operating parameters after accomplishing a preventive maintenance check.

#### Tools & Materials:

Console access key

Pressure gauge capable of measuring 100psi (preferred 0.5% accuracy or better)

Vacuum gauge capable of measuring 30inHg (preferred 0.5% accuracy or better)

Colder fitting adapters for console interface fittings, vacuum gauge adapter and T fittings to attach gauges.

Razor knife

Small common screwdriver

1/16" Hex wrench

Stopwatch

ATEC Service Manual

#### Notes:

*Accomplish all regulator adjustments in the positive direction.*

*Use caution when handling handpiece, needle and inner cannula are very sharp. The protective sheath should remain in place at all times.*

*Use caution when working on console internal component with power applied to console.*

#### Procedure:

Plug console into wall outlet and turn power switch on.

Check all disturbed tubing for leakage.

With console in the Biopsy mode, plug vacuum inlet line with thumb and depress footswitch.

Console should begin to cycle, all pneumatic tubing and vacuum lines can be checked.

Adjust and record main regulator setting.

PSI

Turn console power off.

Disconnect pneumatic line from left air motor regulator to the pressure dump valve at the regulator.

Connect pressure gauge to the dump valve line.

Turn power switch on and allow pressure to stabilize.

Adjust setting to 70 +2/-0 PSI

If adjustment is required; pull up on regulator lock collar to free adjustment knob.

Adjust regulator setting as needed and push lock collar down to the locked position.

Turn power switch off and remove pressure gauge.

Reinstall pneumatic tube and verify security.

Turn console power on and check tubing for leakage.

Measure and record total vacuum draw down.

InHg

Attach vacuum gauge to the vacuum inlet line.

Press the Setup button and verify vacuum level reaches a minimum of 25.5 inHg.

Press the Biopsy button to return the console to the Biopsy mode; vacuum should drop to zero.

Disconnect vacuum gauge.

Adjust cylinder (black) line pressure and record.

PSI

Connect pressure gauge and small colder fitting adapter to the black connector.

Verify console is in the Biopsy mode.

Adjust center (cylinder) regulator to 32 +/- 2psi

Pull down on adjustment knob to unlock regulator, return to the locked position once adjusted.

## ATEC Console Preventive Maintenance

### Post-Service Checks & Adjustments (Continued)

Console S/N

<input type="checkbox"/> Attach ATEC handpiece and vacuum canister. Turn console power off. Place canister in the canister well and attach vacuum inlet line to the top port of the canister. Place handpiece on the console tray and attach vacuum line to the side canister port. Attach the black line to the black cylinder connector on the right user interface panel. Do not connect red air motor line at this time. Place clear portion of vacuum line in the pinch valve; verify saline spike cover installed. Do not attach saline bag to test handpiece. Turn console power on, verify that the console beeps and defaults to the Biopsy mode. Press Setup button and verify the vacuum ready light becomes solid. Press Biopsy button to return console to the Biopsy mode.	PSI
<input type="checkbox"/> Adjust non-MRI air motor regulator and record.	PSI
<b>Pearl and Sapphire</b> consoles only. Connect pressure gauge and small colder fitting adapter to the small red connector. Depress footswitch and allow handpiece to cycle. Read peak air motor pressure during cycling. <b>Pearl</b> console: Adjust left regulator setting to 36 +/-2psi <b>Sapphire</b> console: Adjust right regulator setting to 36 +/-2psi Pull down on adjustment knob to unlock regulator. Push adjustment knob up into the locked position once adjusted. Release footswitch and remove pressure gauge.	
<input type="checkbox"/> Adjust MRI air motor regulator and record.	PSI
<b>Emerald and Sapphire</b> consoles only. Connect pressure gauge and large colder fitting adapter to the large red connector. Depress footswitch and allow handpiece to cycle. Read peak air motor pressure during cycling and record. <b>Emerald and Sapphire</b> console: Adjust left regulator setting to 46 +/-2psi Pull down on adjustment knob to unlock regulator. Push adjustment knob up into the locked position once adjusted. Release footswitch and remove pressure gauge.	
<input type="checkbox"/> Connect handpiece air motor line. Verify all handpiece connections are made and the handpiece functions properly.	
<input type="checkbox"/> Adjust and record cylinder pressure switch point.	PSI
Turn console power off. Attach T fitting in cylinder (black) line and attach pressure gauge. Use razor knife to cut cylinder line approximately 6 inches from console connector. Connect a T fitting in cylinder line to read cylinder pressure during cycling. Turn console power on and verify console defaults to the Biopsy mode. Depress footswitch and allow handpiece to cycle. Note pressure when the console buzzer gives audible beep; pressure switch point. Cycle multiple times and average readings. Adjust pressure switch point to an average setting between 22.9 and 25.1 psi. Turn console power off before adjusting switch; switch adjustment screw is powered at 24VDC. Adjust switch in direction indicated on the switch body. Restore console power after adjustment and cycle handpiece to acquire pressure reading. Measure multiple cycles and record average switch point.	

## ATEC Console Preventive Maintenance

### Post-Service Checks & Adjustments (Continued)

### Console S/N

Adjust and record cylinder pressure switch point; continued from previous page.

Repeat adjustment procedure as needed to obtain proper setting.

Release footswitch, verify console stops cycling and turn power switch off.

Remove T fitting and pressure gauge from cylinder line.

Splice cylinder line tubing together so it does not leak.

<input type="checkbox"/>	Adjust and record vacuum switch point.	InHg
	Attach vacuum gauge to the vacuum inlet line with T adapter.	
	Turn power switch on.	
	Verify handpiece is attached and functions correctly.	
	Press setup button and note point when vacuum ready light becomes solid; vacuum switch point.	
	Cycle between Biopsy mode and the Setup mode to start and stop vacuum from console.	
	Adjust vacuum switch point for proper altitude setting.	
	0 - 2999 ft.    18.5 to 21.0 inHg	
	3000 - 5999 ft    15.2 to 17.7 inHg	
	6000 - 8999 ft    12.7 to 15.0 inHg	
	9000 - 12000 ft    10.7 to 12.7 inHg	
	Adjust switch in direction indicated on the switch body.	
	Return console to the biopsy mode.	
	Disconnect vacuum gauge and connect vacuum inlet line to the top canister port.	
	Depress footswitch and verify handpiece function.	
<input type="checkbox"/>	Verify proper function of saline pinch valve.	
	Press Setup button and verify pinch valve opens.	
	Press Biopsy button and verify pinch valve closes.	
	Depress footswitch, allow handpiece to cycle and verify pinch valve cycling.	
	Release footswitch, verify handpiece stops cycling and pinch valve is in the closed (down) position.	
<input type="checkbox"/>	Adjust and record cycle timing of handpiece.	Seconds
	Depress footswitch and allow handpiece to cycle.	
	Use stop watch to measure time between beeps at the end of the handpiece cycle; cycle time.	
	Adjust needle valve to provide a cycle time of 4.2 to 5.0 seconds.	
	Use 1/16" Hex wrench to loosen lower set pin in needle valve knob.	
	Adjust knob clockwise to increase cycle timing and counter clockwise to decrease timing.	
	Use 1/16" Hex wrench to secure set pin in needle valve knob.	
	Verify setting once needle valve is secure.	
	Release footswitch.	
<input type="checkbox"/>	Check user interface panel lighting and function.	
	Verify both user panels are backlit when power switch is on.	
	Verify power switch is lit when power is on and not lit when power is off; toggle switch slowly.	
	Press Setup button.	
	Verify LED to left of button lights.	
	Verify vacuum ready light becomes solid without flashing and pinch valve opens.	
	Press Test button.	
	Verify LED to left of button lights.	
	Handpiece completes one cycle and console defaults to the Biopsy mode.	
	Press Lavage button.	
	Verify LED to left of button lights.	
	Verify vacuum ready light becomes solid without flashing and pinch valve opens.	

**ATEC Console Preventive Maintenance**  
**Post-Service Checks & Adjustments (Continued)**

**Console S/N**

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Check user interface panel lighting and function; continued from previous page.

Press Manual Aspiration button.

Verify LED to left of button lights.

Verify pinch valve closes.

Depress footswitch and verify vacuum ready light becomes solid within 10 seconds.

Release footswitch.

Press Biopsy button.

Verify LED to left of button lights.

Turn power off, disconnect all handpiece connections and remove handpiece and canister.

Test all failure indications without handpiece connected.

Turn console power on.

Press Setup button.

Verify Vacuum Ready light flashes in approximately 10 seconds.

Press Test button.

Verify Return to Setup light illuminates in approximately 10 seconds.

Press Setup button.

Plug vacuum inlet line with finger and verify a solid vacuum ready light.

With inlet line blocked insert test fitting into black (cylinder) fitting and allow pressure to leak.

Press Test button.

Verify Retest Handpiece light illuminates in approximately 10 seconds.

Remove test fitting from black (cylinder) fitting.

Plug vacuum inlet line with finger.

Press Test button.

Console should cycle and default to the Biopsy mode.

Turn power off, remove power cord from wall outlet and stow on cord management plate.

Correctly wrap footswitch cord (counterclockwise).

Install access door, lock and reinsert lock cover.

Clean panel external surfaces as needed.

Record PM accomplishment per established procedures.

**Notes:**

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**Completed By:**

**Date:**

**Facility Name:**

**Phone #:**

**Facility Contact:**

**Title:**